IASbaba 60 Day plan 2020 – Day 41 Science and technology

Q.1) Consider the following statement(s) with regard to a simple machine –

1. It helps a person in doing same amount of work with lesser force.
2. It helps a person in doing same amount of work with lesser energy.

Select the correct option –

a) 1 only
b) 2 only
c) Both 1 and 2
d) None of the above

Q.1) Solution (a)

A simple machine is a mechanical device that changes the direction or magnitude of a force. In general, they can be defined as the simplest mechanisms that use mechanical advantage (also called leverage) to multiply force.

Usually the term refers to the six classical simple machines –

- Lever
- Wheel and axle
- Pulley
- Inclined plane
- Wedge
- Screw

A simple machine uses a single applied force to do work against a single load force. Ignoring friction losses, the work done on the load is equal to the work done by the applied force.

It should be noted that **simple machines do nothing to change the amount of energy used, just how hard it is to use that energy**.

Q.2) Consider the following statements –

1. The tendency of a liquid drops to contract and occupy minimum surface area due to viscosity.
2. The working principle of washing machine is centrifugation.
3. Diamond sparkles more than glass due to higher refractive index.

Select the correct option –

a) 3 only

b) 2 and 3 only
c) 1 and 3 only
d) All of the above

Q.2) Solution (b)

The tendency of a liquid drops to contract and occupy minimum surface area due to ***surface tension.***

Surface tension is the property among liquids due to which they tend to occupy minimum surface area. That's why water droplet appears spherical because for a given volume, a sphere has minimum surface area. Due to this property of surface tension liquid surface stretches and behaves like a stretched membrane.

Centrifugation is a process by which washing machine separate dust from cloth by the force called centrifugal force. Washing machine content equipment call centrifugate which helps in rotatory motion.

The fast spinning around of the clothes in the drum creates a large centrifugal force from center to the edge of the drum, and the wet clothes are flung outwards to the drum edge and the water escapes through the drum holes.

The whole reason behind the sparkle of a diamond or glass is the Refractive index. This is not to be confused with ordinary reflection. Higher the RI, more the sparkle. A diamond has a large refractive index and very small critical angle as against glass, which has a lower refractive index and large critical angle.

It wouldn't matter if a diamond and glass were cut identically in shape. It is based on the difference in the amount of light that is totally reflected from their lower facets. For total internal reflection to take place, light must peregrinate from an optically denser medium to a relatively more infrequent medium. However one shouldn't forget that there is a variation in shine based on the shape which the diamond has been cut.

Q.3) For which of the following capillarity is the reason?

1. Blotting of ink.
2. Rising of underground water through the soil.
3. Spread of water drop on cotton cloth.
4. Formation of Bubble
5. Rising of water from the roots of the plant to its foliage.
6. Lighting through kerosene lamp.

Select the correct option –

a) 1, 3 and 5 only
b) 1, 2, 3 and 5 only

c) 1, 2, 3, 5 and 6 only
d) All of the above

Q.3) Solution (c)

Capillary action, or capillarity, is a phenomenon where liquid spontaneously rises in a narrow space such as a thin tube, or in porous materials such as paper or in some non -porous materials such as liquefied carbon fibre. This effect can cause liquids to flow against the force of gravity or the magnetic field induction.

Kerosene oil rises in a wick of lantern because of capillary action in the wick. Capillarity is the ability of a liquid to flow in narrow spaces without the assistance of external forces. Most of the wicks are made up of cotton or threads of cotton. The small pores act as small capillaries, causing it to absorb a large amount of fluid.

Capillarity is the primary force that enables the soil to retain water, as well as to regulate its movement. The phenomenon of capillarity also occurs in the soil. In the same way that water moves upwards through a tube against the force of gravity; water moves upwards through soil pores, or the spaces between soil particles. The height to which the water rises is dependent upon pore size. As a result, the smaller the soil pores, the higher the capillary rise.

Q.4) Three identical vessels A, B and C are filled with water, mercury and kerosene respectively, upto an equal height. The three vessels are provided with identical taps at the bottom of the vessels. If the three taps are opened simultaneously, then which vessel is emptied first?

a) Vessel A
b) Vessel B
c) Vessel C
d) All Vessels will be emptied simultaneously.

Q.4) Solution (c)

Kerosene has least viscosity among all three liquids. So it has more tendency to flow and its vessel will get emptied first.

Q.5) Assertion (A) - The boiling point of water decreases as the altitude increases.

Reason (R) - The atmospheric pressure decreases with altitude.

Select the correct option –

a) Both A and R are correct and R is the correct explanation of the A
b) Both A and R are correct but R is not the correct explanation of the A.

c) A is correct but R is false
d) Both A and R are incorrect.

Q.5) Solution (a)

As elevation increases, atmospheric pressure decreases because air is less dense at higher altitudes. Because the atmospheric pressure is lower, the vapour pressure of the liquid needs to be lower to reach boiling point. Therefore, less heat is required to make the vapour pressure equal to the atmospheric pressure.

Q.6) Optical fibre work on the principle of –

1. Total Internal Reflection
2. Refraction
3. Scattering
4. Interference

Select the correct option –

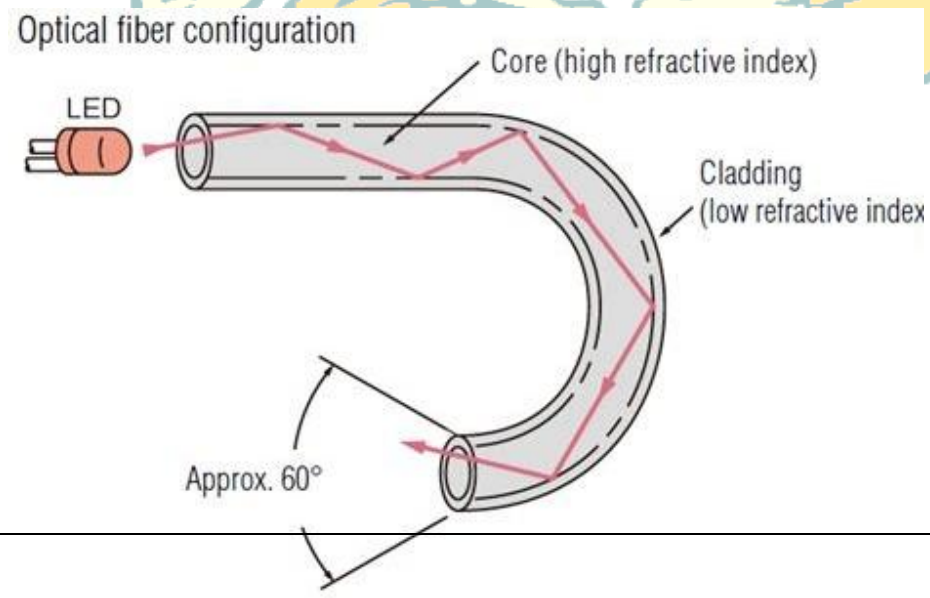
a) 1 only
b) 1 and 2 only
c) 1 and 4 only
d) 1, 2 and 4 only

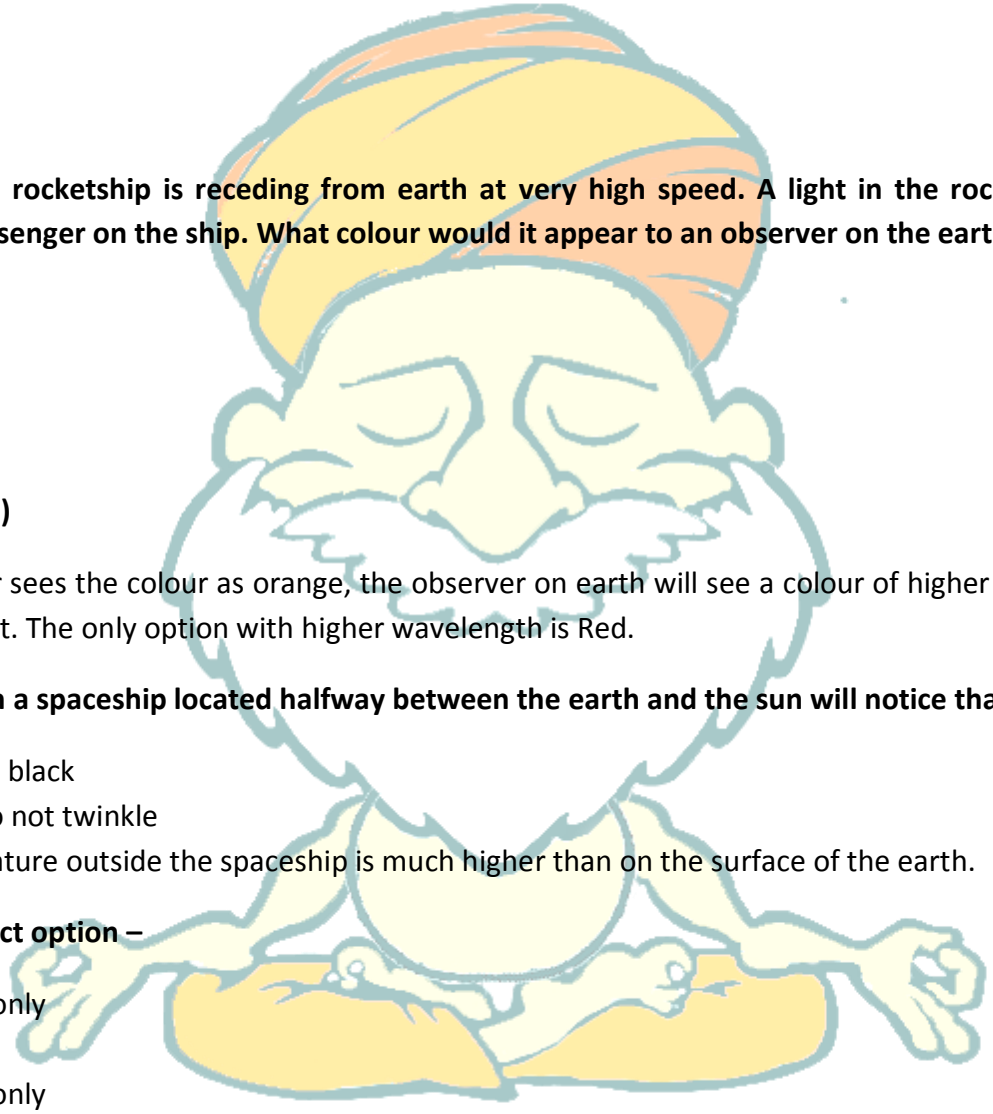
Q.6) Solution (a)

The Optical Fibre is working on the principle of Total Internal Reflection, which helps the light signals to be transmitted from one place to another with a negligible amount of loss of energy.

The light is reflected back over and over because of total internal reflection until it emerges at the other end of the cable. This is possible by keeping the refractive index of core higher than that of cladding.

e)





Q.7) Suppose a rocketship is receding from earth at very high speed. A light in the rocketship appears orange to a passenger on the ship. What colour would it appear to an observer on the earth?

a) Blue
b) Orange
c) Yellow
d) Red

Q.7) Solution (d)

If the passenger sees the colour as orange, the observer on earth will see a colour of higher wavelength due to redshift effect. The only option with higher wavelength is Red.

Q.8) A person in a spaceship located halfway between the earth and the sun will notice that the –

1. Sky is jet black
2. Starts do not twinkle
3. Temperature outside the spaceship is much higher than on the surface of the earth.

Select the correct option –

a) 1 and 2 only
b) 2 only
c) 1 and 3 only
d) All of the above

Q.8) Solution (d)

There is a presence of atmosphere at earth's surface which consists of thick and moving layers of air. The dust particles, particulates, smog, water vapour and smoke are also present in air. Stars twinkle when we see them from the Earth's surface because we are viewing them through thick layers of turbulent (moving) air in

the Earth's atmosphere. As their light travels through the many layers of the Earth's atmosphere, the light of the star is bent (refracted) many times in random directions (light is bent when it hits a change in density – like a pocket of cold air or hot air). This random refraction results in the star as its twinkling but for a person in spaceship no such refractions are possible as there is vaccum in space. Thus, star will not twinkle. Similarly, sky will appear blue to us due to Rayleigh scattering which is again due to presence of atmosphere on earth's surface. The shorter wavelength light is absorbed by the gas molecules of atmosphere. The absorbed blue light is then radiated in different directions. It gets scattered all around the sky. Some of this scattered blue light reaches you. Since, you see, the sky looks blue. Whereas no atmosphere is there in space thus, no absorbing and scattering is possible that's why for a person in spaceship sky appears black. Temperature outside the spaceship is higher in comparison to earth's surface because of being nearer to sun.

Q.9) Consider the following

1. Electromagnetic radiation
2. Geothermal energy
3. Gravitational force
4. Plate movements
5. Rotation of the earth
6. Revolution of the earth

Which of the above are responsible for bringing dynamic changes on the surface of the earth?

a) 1, 2, 3 and 4 only
b) 1, 3, 5 and 6 only
c) 2, 4, 5 and 6 only
d) 1, 2, 3, 4, 5 and 6

Q.9) Solution (d)

Tides occur due to gravitational pull of the Moon. Tides cause coastal erosion. **(Statement 3 is correct)**

Earthquake brings dynamic change on earth surface **(Statement 4 is correct)**

Geothermal energy movements causes volcanos which brings dynamic change on earth surface. **(Statement 2 is correct)**

Electromagnetic radiation, rotation, revolution cause seasonal changes. **(Statements 1, 5 and 6 are correct)**

Q.10) Consider the following phenomena –

1. Size of the sun at dusk
2. Colour of the sun at dawn
3. Moon being visible at dawn
4. Twinkle of stars in the sky
5. Polestar being visible in the sky

Which of the above are optical illusions?

a) 1, 2 and 3
b) 3, 4 and 5
c) 1, 2 and 4
d) 2, 3 and 5

Q.10) Solution (c)

An optical illusion also called a visual illusion is characterized by visually perceived images that differ from object than reality. The information gathered by the eye is processed in the brain to give a perception that does not tally with a physical measurement of the stimulus source. Moon being visible in dawn and polestar being visible in sky are not any illusion. Size of the sun which appears big, color of the sun at dawn and twinkle of stars in the sky are not actual phenomenon but happens due to various factors such as refraction, different density of the air layers etc.

Q.11) Rainbow is produced when sunlight falls on drops of rain. Which of the following physical phenomena are responsible for this?

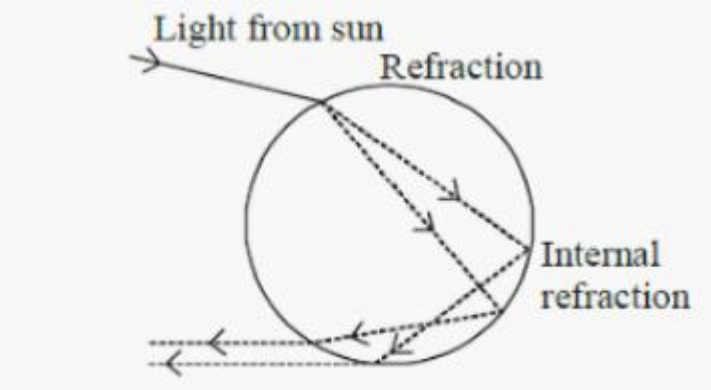
1. Dispersion
2. Refraction
3. Internal reflection

Select the correct Solution using the codes given below.

a) 1 and 2 only
b) 2 and 3 only
c) 1 and 3 only
d) 1, 2 and 3

Q.11) Solution (d)

A rainbow is always formed in a direction opposite to that of the Sun. The water droplets act like small prisms. They refract and disperse the incident sunlight, then reflect it internally, and finally refract it again when it comes out of the raindrop Due to the dispersion of light and internal reflection; different colours reach the observer's eye.



Hence all the 3 phenomena i.e. Dispersion, Refraction, and Internal reflection are responsible for rainbow formation

Q.12) What is/are the implication/ implications of the creation of anti-matter?

1. It will make mineral prospecting and oil exploration easier and cheaper.
2. It will help probe the possibility of the existence of stars and galaxies made of anti-matter.
3. It will help understand the evolution of the universe.

Select the correct answer using the codes given below:

a) 1 only
b) 2 and 3 only
c) 3 only
d) 1, 2 and 3

Q.12) Solution (b)

Antimatter contains the same set of subatomic particles as matter but with opposite charges. Protons have antiprotons; neutrons, antineutrons; and electrons, antielectrons. When the two come in contact, they annihilate each other.

Scientists do not have a definitive answer to why matter won the war and the universe is composed only of matter. But it is believed a slight asymmetry gave matter an edge over antimatter, knocking it out almost entirely.

Seeing the birth of antimatter in conditions that simulate the aftermath of Big Bang provide insight into how antimatter popped and vanished in the early universe.

Antimatter can also help search new phenomena in the cosmos. Just as heavier matter like carbon, sodium and iron are signatures of evolved life forms, heavier antimatter could help probe possibility of similar complex systems of universe made of antimatter. The discovery of even small amounts of anti-helium

nucleus in the cosmic ray would point towards the existence of stars and even entire galaxies made of antimatter.

Antimatter could find use in medical diagnostics, where positrons can be used to identify different diseases. Antiprotons can be used in propulsion technology for providing direct thrust, energise a propellant or heat a solid core.

Q.13) The efforts to detect the existence of Higgs boson particle have become frequent news in the recent past. What is /are the importance/importance of discovering this particle?

1. It will enable us to understand as to why elementary particles have mass.
2. It will enable us in the near future to develop the technology to transferring matter from one point to another without traversing the physical space between them.
3. It will enable us to create better fuels for nuclear fission.

Select the correct answer using the codes given below:

a) 1 only
b) 2 and 3 only
c) 1 and 3 only
d) 1, 2 and 3

Q.13) Solution (a)

The Higgs Boson gives idea on how each particle has mass. It doesn't give better fuels for nuclear fission or for inter-space travel.

Q.14) Which of the following is /are cited by the scientists as evidence/ evidences for the continued expansion of universe?

1. Detection of microwaves in space
2. Observation of redshift phenomenon in space
3. Movement of asteroids in space
4. Occurrence of supernova explosions in space

Select the correct answer using the codes given below:

a) 1 and 2

b) 2 only
c) 1, 3 and 4
d) None of the above can be cited as evidence

Q.14) Solution (a)

Cosmic Microwave Background Radiation

- Immediately after the big bang, the universe was so hot that the thermonuclear reactions (that are usually seen in stars today) happened everywhere in the universe leading to formation of primodial elements, hydrogen and helium.
- The thermonuclear fusion of hydrogen into helium atoms led to release of high-energy shortwave photons which is known to be cosmic background radiation.
- As the universe expanded this radiation also expanded becoming long-wave (microwave) which is why it is called cosmic microwave background radiation which fills the entire space.
- Thus CMB is an evidence for expansion of universe.

Ever since 1929, when Edwin Hubble discovered that the Universe is expanding, we have known that most other galaxies are moving away from us. Light from these galaxies is shifted to longer (and this means redder) wavelengths - in other words, it is 'red-shifted'.

Supernova explosions help to determine distance of the galaxy. This distance is used to compare expansion distance and hence bring to light the history of expansion in the universe. This showed that the universe expansion is increasing and hence get us to know that the expansion of the universe is increasing or accelerating.

Q.15) The known forces of nature can be divided into four classes, viz, gravity electromagnetism, weak nuclear force and strong nuclear force. With reference to them, which one of the following statements is not correct?

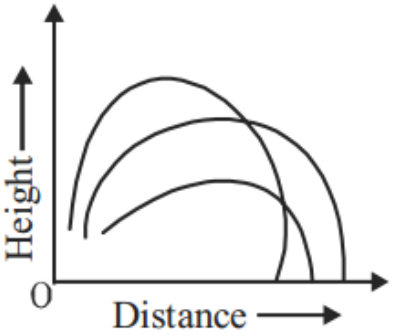
a) Gravity is the strongest of the four
b) Electromagnetism act only on particles with an electric charge
c) Weak nuclear force causes radioactivity
d) Strong nuclear force holds protons and neutrons inside the nuclear of an atom.

Q.15) Solution (a)

Option a) is wrong because gravity is the weakest force among the four fundamental forces. Rest of the statements is correct.

The strong nuclear force is one of the four fundamental forces in nature; the other three are gravity, electromagnetism and the weak force. As its name implies, the strong force is the strongest force of the four. It is responsible for binding together the fundamental particles of matter to form larger particles.

Q.16) A boy standing at point O in the given diagram throws a ball three times with the same force, but projecting it along the different inclination from the ground. The results of the throw have been plotted in the diagram. Which of the following is a valid conclusion?

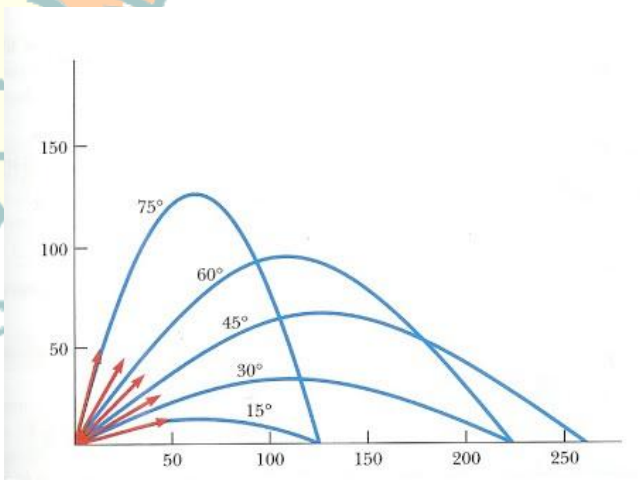


a) The larger the initial inclination, the longer the throw.
b) The larger the height reached, the longer the throw.
c) The larger the height reached, the shorter the throw.
d) The larger the initial inclination, the greater the height reached.

Q.16) Solution (d)

In a projectile motion for the given initial speed –

1. There exist two inclinations for the same range. (So statement 1, 2 and 3 will be incorrect)
2. The larger the initial inclination, the greater the height reached. (This can be seen from the diagram)



Q.17) Fusion reaction takes place at high temperature because

a) nuclei break up at high temperature
b) atoms are ionized at high temperature
c) molecules break up at high temperature
d) kinetic energy is high enough to overcome repulsion at high temperature

Q.17) Solution (d)

Fusion reaction takes place at high temperature because Kinetic energy is high enough to overcome repulsion at high temperature

Q.18) Assertion – Temperature of a metal wire rises when electric current is passed through it.

Reason – Collision of metal atom with each other releases heat energy.

Select the correct option –

a) Both A and R are correct and R is the correct explanation of the A
b) Both A and R are correct but R is not the correct explanation of the A.
c) A is correct but R is false
d) Both A and R are incorrect.

Q.18) Solution (c)

Collision of metal atom does not happen. Atoms remain stationary in the 'sea of outer electron'. Collision with electron happens during electrical conductivity.

Q.19) In which of the following there is likely application of LASER (Light Amplification by Stimulation Emission of Radiation)?

1. Storage device
2. Drilling
3. Distance measurement
4. Mineral exploration

Select the correct option –

a) 2 and 3 only
b) 1, 2 and 3 only
c) 1 and 3 only
d) All of the above

Q.19) Solution (d)

Audio compact discs, using infrared lasers, were introduced around 1980; CD-ROMs (compact disc read-only memory) for computer data soon followed. Newer optical drives use more powerful lasers to record data on light-sensitive discs called CD-R (recordable) or CD-RW (read/write), which can be played in ordinary CD-ROM drives. DVDs (digital video, or versatile, discs) work similarly, but they use a shorter-wavelength red laser to read smaller spots, so the discs can hold enough information to play a digitized motion picture. A newer generation of discs called Blu-ray uses blue-light lasers to read and store data at an even higher density

Fiber-optic communication systems that transmit signals more than a few kilometers also use semiconductor laser beams.

Laser energy can be focused in space and concentrated in time so that it heats, burns away, or vaporizes many materials. Although the total energy in a laser beam may be small, the concentrated power on small spots or during short intervals can be enormous. Although lasers cost much more than mechanical drills or blades, their different properties allow them to perform otherwise difficult tasks. A laser beam does not deform flexible materials as a mechanical drill would, so it can drill holes in materials such as soft rubber nipples for baby bottles. Likewise, laser beams can drill or cut into extremely hard materials without dulling bits or blades.

Pulsed laser radar can measure distance in the same manner as microwave radar by timing how long it takes a laser pulse to bounce back from a distant object. For example, in 1969 laser radar precisely measured the distance from the Earth to the Moon. Laser range finding is now widely used for remote sensing. Instruments flown on aircraft can profile the layers of foliage in a forest, and the Mars Global Surveyor used a laser altimeter to map elevations on the Martian surface.

Laser-induced breakdown spectroscopy (LIBS) represents an emerging geochemical tool for mineral exploration that can provide rapid, in situ, compositional analysis and high-resolution imaging in both laboratory and field and settings

Q.20) Which of the following are related to Einstein's work?

1. Photoelectric effect
2. Brownian motion
3. Mass-energy equivalence
4. Black hole information paradox
5. Quantum theory

Select the correct option

a) 1, 2 and 3 only
b) 1, 2, 3 and 4 only
c) 1, 2, 3and 5 only
d) 1, 3, 4 and 5 only

Q.20) Solution (c)

In 1905 Einstein published four groundbreaking papers, on the photoelectric effect, Brownian motion, special relativity, and the equivalence of mass and energy, which were to bring him to the notice of the academic world, at the age of 26.

Einstein was awarded the 1921 Nobel Prize in Physics "for his services to Theoretical Physics, and especially for his discovery of the law of the photoelectric effect".

He is best known to the general public for his mass–energy equivalence formula ($E = mc^2$), which has been dubbed "the world's most famous equation".

Einstein played a major role in developing quantum theory, beginning with his 1905 paper on the photoelectric effect. However, he became displeased with modern quantum mechanics as it had evolved after 1925, despite its acceptance by other physicists.

The black hole information paradox is a puzzle resulting from the combination of quantum mechanics and general relativity. Calculations suggest that physical information could permanently disappear in a black hole, allowing many physical states to devolve into the same state. This was propounded by Stephen Hawking and others.

Q.21) Recently RBI has revised the Supervisory Action Framework (SAF) for placing restrictions on which of the following?

a) Scheduled Commercial Banks
b) Payment Banks
c) Small Finance Banks
d) Urban Co-operative Banks

Q.21) Solution (d)

- **RBI has revised the Supervisory Action Framework (SAF) for Urban Co-operative Banks (UCBs).**
- SAF is similar to the Prompt Corrective Action (PCA) framework which is imposed on commercial banks.
- According to revised SAF, UCBs will face restrictions for worsening of three parameters:
  1. When net Non-Performing Assets (NPAs) exceed 6% of net advances,
  2. When losses are incurred for two consecutive financial years or losses have accumulated on the balance sheets, and
  3. If Capital Adequacy Ratio (CAR) falls below 9%.

Q.22) Consider the following pairs:

Sanctuaries in news	***State***

1. Dnyanganga	Uttar Pradesh
2. Tipeshwar	Maharashtra
3. Netravali	Karnataka

Which of the pairs given above are correctly matched?

a) 1 and 2 only
b) 2 only
c) 2 and 3 only
d) 1, 2 and 3

Q.22) Solution (b)

- Wildlife Sanctuaries in news:
  - **Dnyanganga** and **Tipeshwar** Wildlife Sanctuary – Maharashtra.
  - **Netravali** and **Mhadei** Wildlife Sanctuary – Goa.

Q.23) Which of the following is the home port of aircraft carrier INS Vikramaditya?

a) Mumbai
b) Karwar
c) Cochin
d) Vishakhapatnam

Q.23) Solution (b)

- **INS Vikramaditya is modified Kiev-class aircraft carrier**. It was built in 1987 and had served the Soviet navy (named as Baku). It was later renamed Admiral Gorshkov under the Russian navy.
- The vessel can carry more than 30 long-range multi-role fighters with anti-ship missiles, air-to-air missiles, guided bombs and rockets.
- It was retrofitted with a Barak missile system (joint development with Israel). It is based at its **home port at Karwar in Karnataka**.

Q.24) Consider the following statements:

1. Zonal Councils are the statutory bodies established by the Zonal Council Act of 1956.

2. They are only deliberative and advisory bodies.
3. The Union Home Minister is the chairman of all Zonal Councils.

Which of the statements given above is/are correct?

a) 1 and 3 only
b) 2 only
c) 2 and 3 only
d) 1, 2 and 3

Q.24) Solution (c)

Statement 1	**Statement 2**	**Statement 3**
Incorrect	**Correct**	**Correct**
Zonal Councils are the statutory (and not the constitutional) bodies established by States Reorganization Act of 1956. The act divided the country into five zones (Northern, Central, Eastern, Western and Southern) and provided a zonal council for each zone. A North-Eastern Council was created by a separate Act of Parliament, the North-Eastern Council Act of 1971.	The zonal councils aim at promoting cooperation and coordination between states, union territories and the Centre. They discuss and make recommendations regarding matters like economic and social planning, linguistic minorities, border disputes, inter-state transport, and so on. **They are only deliberative and advisory bodies.**	**The Union Home Minister is the chairman of all Zonal Councils**. Each zonal council consists of the following members - Union Home Minister; Chief Ministers of all the States in the zone; two other ministers from each state in the zone and Administrator of each union territory in the zone.

Q.25) Consider the following statements about Yellow Rust:

1. It is a bacterial disease.
2. It affects the wheat crop.

Which of the statements given above is/are correct?

a) 1 only
b) 2 only

c) Both 1 and 2
d) Neither 1 nor 2

Q.25) Solution (b)

- **Yellow Rust is a fungal disease where yellow stripes of powder or dust appears on leaves and leaf sheaths of the wheat crop.**
- This occurs when the fungal colonies in the leaves drain the carbohydrates from the plant and reduce the green leaf area. The disease affects crop development, and eventually the yield (5-30%).
- In India, it is a major disease in the Northern Hill Zone and the North-Western Plain Zone and spreads easily during the onset of cool weather and when wind conditions are favorable. Rain, dew and fog favour the disease's development.

Q.26) Consider the following statements with respect to 'Indian Data Relay Satellite System (IDRSS)'

1. IDRSS will maintain a continuous communication link with Indian remote sensing/earth observation and other satellites in low earth orbit.
2. IDRSS satellites would be launched on the GSLV launcher to geostationary orbits.

Select the correct statements

a) 1 Only
b) 2 Only
c) Both 1 and 2
d) Neither 1 nor 2

Q.26) Solution (c)

As part of its proposed manned space mission, India will launch the Indian Data Relay Satellite System (IDRSS) to improve data relay and communication links with its remote sensing/earth observation satellites.

The two-satellite IDRSS will maintain a continuous communication link with India's remote sensing/earth observation satellites and also with the Geosynchronous Satellite Launch Vehicle Mark III (GSLV Mk III) that would carry three Indian astronauts to space in 2022.

Manned mission apart, IDRSS will maintain a continuous communication link with Indian remote sensing/earth observation and other satellites in low earth orbit.

The two IDRSS satellites will be placed in geostationary orbit, enabling the satellite to satellite communication and transfer data.

Q.27) Consider the following statements with respect to 'Pyrocumulonimbus Cloud'.

1. It is a type of cumulonimbus cloud that forms above a source of heat.
2. There is no lightning from such clouds.

Select the correct statements

a) 1 Only
b) 2 Only
c) Both 1 and 2
d) Neither 1 nor 2

Q.27) Solution (a)

The pyrocumulonimbus clouds are essentially a thunderstorm that forms from the smoke plume of a fire as intense heat from the fire causes air to rise rapidly, drawing in cooler air.

As the cloud climbs and then cools in the low temperatures of the upper atmosphere, the collisions of ice particles in the higher parts of the cloud build up an electrical charge, which can be released as lightning.

These can cause dangerous and unpredictable changes in fire behaviour, making them harder to fight as well as causing lightning strikes that could ignite new fires.

The rising air also spurs intense updrafts that suck in so much air that strong winds develop, causing a fire to burn hotter and spread further.

Q.28) Consider the following statements

1. According to the Constitution, Parliament cannot make laws on state subjects.
2. Constitution obligates the State government to ensure implementation of the laws made by the Parliament.
3. According to Constitution, Centre is to prevail over the states in the event of any inconsistency between central and state legislation.

Select the correct statements

a) 1 and 2
b) 2 and 3
c) 1 and 3
d) All of the above

Q.28) Solution (b)

Article 249 empowers Parliament to make laws even on state subjects in the national interest.

Under Articles 251 and 254, the Centre is to prevail over the states in the event of any inconsistency between central and state legislation.

Article 256 of the Constitution obligates the State government to ensure implementation of the laws made by Parliament.

Q.29) Which of the following is not declared a 'Public Health Emergency of International Concern' according to the World Health Organisation?

a) 2009 H1N1
b) 2018 Nipah Virus
c) 2014 Ebola Virus
d) 1206 Zika Virus

Q.29) Solution (b)

A Public Health Emergency of International Concern is a formal declaration by the World Health Organization (WHO) of "an extraordinary event which is determined to constitute a public health risk to other States through the international spread of disease and to potentially require a coordinated international response", formulated when a situation arises that is "serious, sudden, unusual or unexpected", which "carries implications for public health beyond the affected state's national border" and "may require immediate international action".

Since 2009 there have been six PHEIC declarations: the 2009 H1N1 (or swine flu) pandemic, the 2014 polio declaration, the 2014 outbreak of Ebola in Western Africa, the 2015–16 Zika virus epidemic, the ongoing 2018–20 Kivu Ebola epidemic, and the ongoing 2019–20 coronavirus pandemic, declared a PHEIC by the Director-General. The recommendations are temporary and require reviews every three months

Q.30) 'Swadeshi Steam Navigation Company (SSNC)' was launched by

a) V.O. Chidambaram Pillai
b) S. Ramanathan
c) Nana Jagannath Sunkersett

d) Mancherji E.Joshi

Q.30) Solution (a)

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